Owner's Guide

CASCADE®

TRADITIONAL-STYLE HANDPIECE CONTROL SYSTEM

a-dec®

85.2607.00

Products List | Print | Table of Contents

Warranty Information

Serial Number _____

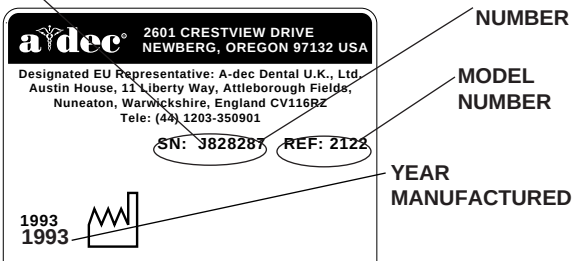
Model Number _____

Date Purchased _____

Date of Service	Model/Description of Service	Technician's Initials

ALPHABETICAL EQUIVALENT TO THE NUMERAL OF THE MONTH MANUFACTURED

A	January
B	February
C	March
D	April
E	May
F	June
G	July
H	August
I	September
J	October
K	November
L	December



SERIAL NUMBER IDENTIFICATION

Cascade Traditional-style Handpiece Control System
Serial Number Location:

- On the underside of the control head (near the air pressure gauge)

For service information contact your local authorized A-dec dealer.

Check with local codes and A.D.A. (Americans with Disabilities Act) Requirements for Installation of this product.

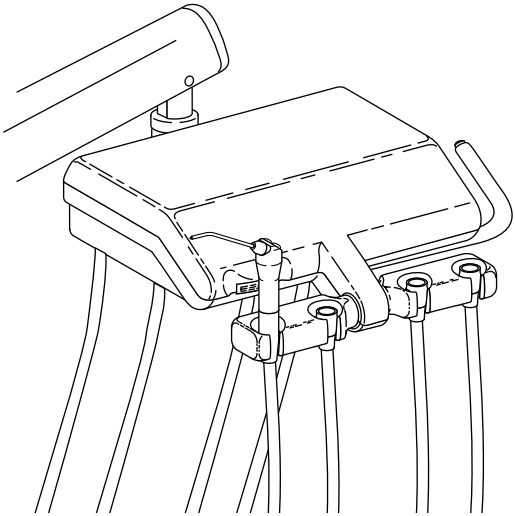
A-dec warrants its products against defects in material or workmanship for one year from time of delivery (except for handpieces which have a warranty period of six months). A-dec's sole obligation under the warranty is to provide parts for the repair, or at its option, to provide the replacement product (excluding labor). The buyer shall have no other remedy. (All special, incidental, and coincidental damages are excluded.) Written notice of breach of warranty must be given to A-dec within the warranty period. The warranty does not cover damage resulting from improper installation or maintenance, accident or misuse. The warranty does not cover damage resulting from the use of cleaning, disinfecting or sterilization chemicals and processes. The warranty also does not cover light bulbs. Failure to follow instructions provided in A-dec's Operation and Maintenance Instructions (Owner's Guide) may void the warranty.

NO OTHER WARRANTIES AS TO
MERCHANTABILITY OR OTHERWISE ARE MADE

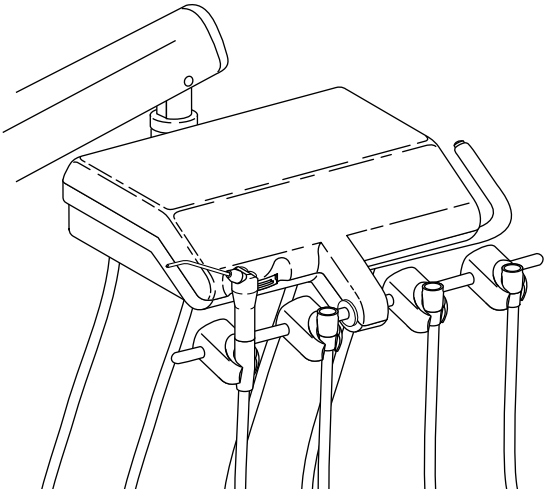
a-dec®

All product names used in this document are trademarks or registered trademarks of their respective holders.

Printed in U.S.A. • Copyright © 1999 • All Rights Reserved



Cascade Traditional-style Handpiece Control with Unitized Holders



Cascade Traditional-style Handpiece Control with optional Individual Holders

CONTENTS

Serial number location, service information, and warranty information are located on the inside of the front cover and front page.

About Your Control System 2
Handpiece Controls 3
Drive Air Pressure Gauge 5
Arm Brake 6
Handpiece Holder Positioning 7
Touch Pad *(optional)* 8
Foot Control 8
Handpiece Tubing Flush 10
Handpiece Dry Block Conversion 11
Oil Collector 12
Autoclavable Syringe 13
Tray Holder *(optional)* 13
    Tray Holder/Tray Arm
        Tension Adjustment 14
Routine Adjustments 15
    Handpiece Coolant Adjustments 15
    Handpiece Drive Air
        Pressure Adjustment 16
Flexible Arm 17
    Counterbalance Spring Adjustment 17
    Arm Stop Adjustment
        for Left/Right Conversion 20
System Air and Water
    Pressure Adjustments 21
Care Instructions 21
Maintenance 22
Adjustments and Specifications 22
Identification of Symbols 23
Classification of Equipment (EN 60601-1) 23

About Your Control System

Your Cascade Traditional-style Handpiece Control System is an arm-mounted control, built around A-dec's Century Plus® control system for three handpieces. The control system can accommodate up to four handpieces. The control system includes A-dec's autoclavable syringe; and may also be equipped with an optional built-in ultrasonic scaler, low voltage water heater/heated syringe tubing, tooth dryer, electric handpiece, curing light, and intra-oral light source.

Handpiece activation is automatic. When you lift a handpiece from its holder, the handpiece becomes active; allowing it to run when you press on the foot control disc.

Five autoclavable adjustment keys *(see Figure 1)* are provided for your use when making adjustments to the recessed controls. If the adjustment keys are ever lost or misplaced, you can use a 1⁄8-inch hex key instead.

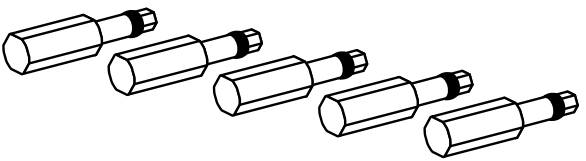


Figure 1. Autoclavable Adjustment Keys

Handpiece Controls

Coolant water flow and drive air pressure are individually adjustable for each handpiece. Coolant air flow control adjustments affect all handpieces. All handpiece controls are located on the sides of the unit. *Refer to pages 15 and 16 for complete adjustment instructions.*

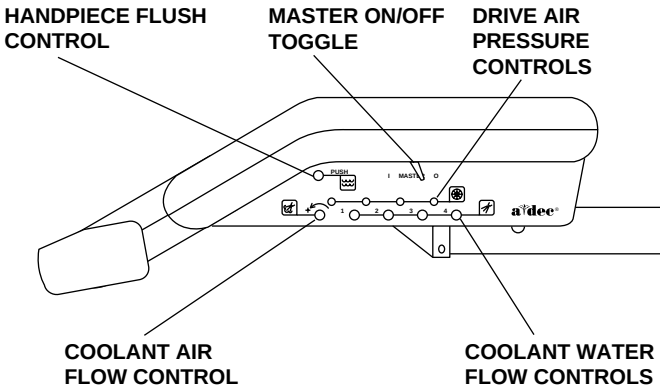


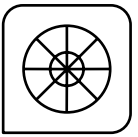
Figure 2. Handpiece Controls

MASTER O

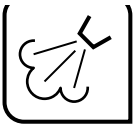
Master on/off toggle. Turns ON or OFF air, water, and electrical power to the control system.

CAUTION

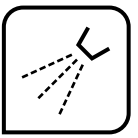
The MASTER ON/OFF TOGGLE should be in the OFF (O) position whenever the unit IS NOT in use. This will prevent the possibility of water damage should a leak occur while the unit is unattended. Making sure the unit is OFF will also prevent the possibility of self-activation and the resulting burn-out of your electrical accessories.



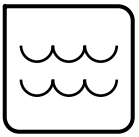
Drive Air Pressure Control. Used to adjust the drive air pressure to **each** handpiece. Turn the control counterclockwise until your handpiece is running at slightly above the specified maximum pressure; then, turn the control until the handpiece is running at the handpiece manufacturer's specified maximum pressure.



Coolant Air Flow Control. Used to adjust coolant air flow to **all** handpieces. Turn the control clockwise to decrease the flow, counterclockwise to increase. When turned fully clockwise, air flow is turned off.



Coolant Water Flow Controls. Used to adjust the flow of coolant water to **each** handpiece. Turn the control clockwise to decrease the flow, counterclockwise to increase.



Handpiece Tubing Flush Control. Used to flush system water through all the handpiece tubings. *Refer to page 10 for complete handpiece tubing flush instructions.*

Drive Air Pressure Gauge

The drive air pressure gauge *(see Figure 3)* indicates, in psi and kg/cm^2, the drive air pressure to the active handpiece.

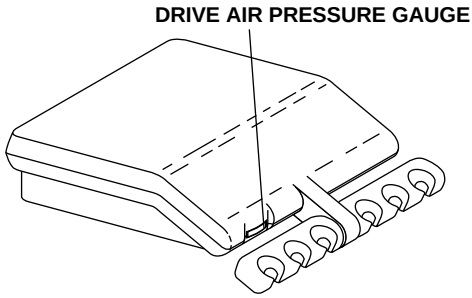


Figure 3. Drive Air Pressure Gauge

Arm Brake

The arm is braked against vertical movement until you press the arm brake button or move the arm brake toggle to the OFF position *(see Figure 4)*. You then are able to position the control head. Releasing the arm brake button or moving the toggle to the ON position locks the control head in place.

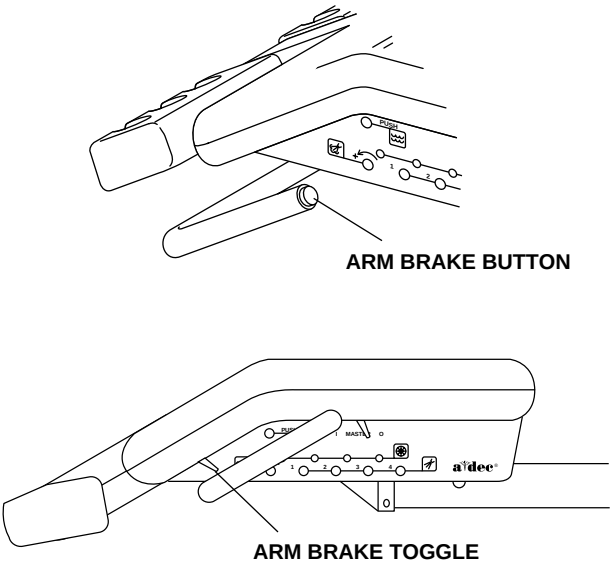


Figure 4. Arm Brake

Handpiece Holder Positioning

To reposition a holder, rotate it to the desired angle. Note that the tension is preset at the factory. However, if a holder is difficult to reposition or repositions too easily, adjust the tension by loosening or tightening the adjustment screw shown in Figures 5A and 5B.

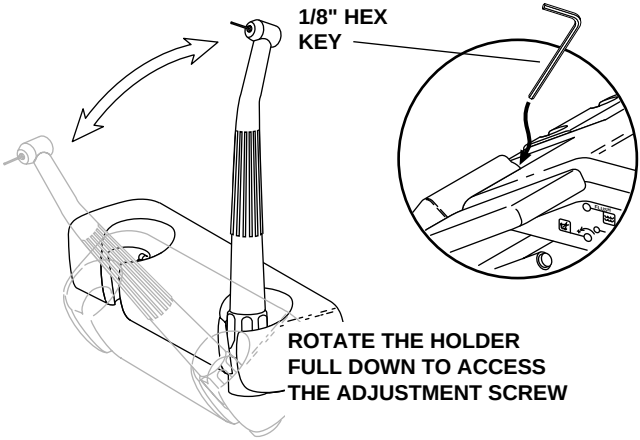


Figure 5A. Repositioning a Unitized Handpiece Holder

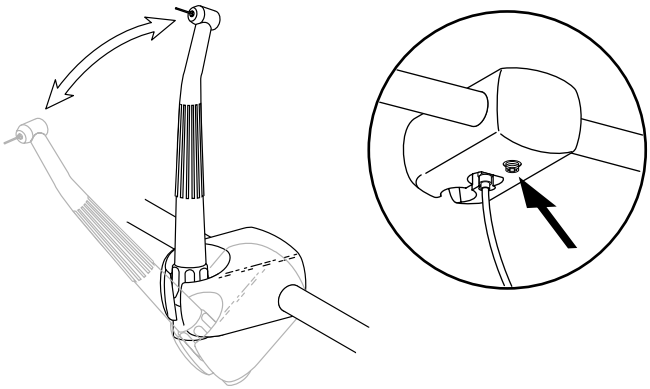


Figure 5B. Repositioning an Individual Handpiece Holder

Touch Pad (optional)

For chair touch pad instructions, refer to the **Cascade 1040 Chair Owner's Guide** *(A-dec Publication No. 85.2605.00)*, **Decade 1011/1021 Chair Owner's Guide** *(A-dec Publication No. 85.2635.00)*.

For Cascade Master Series® touch pad instructions, refer to your ***Cascade Master Series Touch Pad Owner's Guide***, *(A-dec Publication No. 85.2627.00)*.

Foot Control

The foot control modulates drive air to the active handpiece, and provides an air signal that turns on coolant air and coolant water flow. The foot control is operated by light foot pressure applied to any part of the foot control disc.

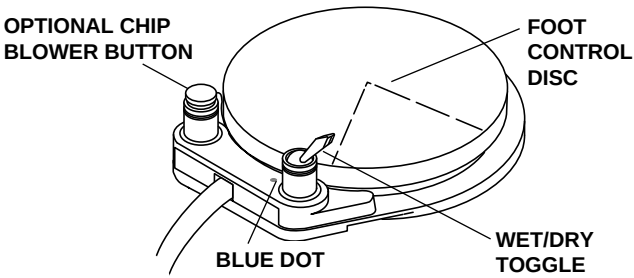


Figure 6. Foot Control

The foot control is equipped with a wet/dry toggle and, optionally, a chip blower button *(see Figure 6)*.

If the unit is equipped with the optional Cascade Master Series touch pad, the standard Cascade Master foot control will not have a wet/dry toggle. The coolant water (wet/dry) on/off control is located on the Master touch pad for better accessibility.

Wet/Dry Toggle. Allows you to shut off the coolant water to the handpiece without moving your hands from the oral cavity. Using your foot, move the toggle toward the blue dot to turn the coolant water ON; move it away from the dot to turn the water OFF.

Cascade Master touch pad coolant water on/off control. Conveniently located on the touch pad, the button allows you to turn on or shut off the coolant water to the handpiece. The indicator above the coolant water on/off button will illuminate when the function is ON.

Chip Blower Button. Sends a jet of air through the handpiece when it is not running. This button can alternatively be used to provide an air signal for such purposes as remote actuation of the cuspidor bowl rinse or cup filler.

Handpiece Tubing Flush

Your Cascade handpiece control system is equipped with A-dec's handpiece tubing flush system. The system flushes more water through the tubings in less time than is normally possible when operating the foot control only. The handpieces should not be connected when flushing the tubings.

How Often Should the Handpiece Tubings be Flushed?

After Each Patient:
Flush the tubings for about 20–30 seconds.

At the Beginning of Each Day:
Flush the tubings for 2–3 minutes.

Flushing the Handpiece Tubings

Gather up all the handpiece tubings that use coolant water and hold them over a sink, cuspidor bowl or basin. Be sure you hold the tubings so that the water will be directed away from you and into the receptacle *(see Figure 7)*.

Insert an adjustment key or 1/8-inch hex key into the handpiece tubing flush control on the side of the control head. Push in and hold the key for the appropriate time required, either for flushing between patients or flushing at the beginning of each day, depending on the situation. Remove the key and replace the tubings in their holders. Be careful to replace each in the proper holder.

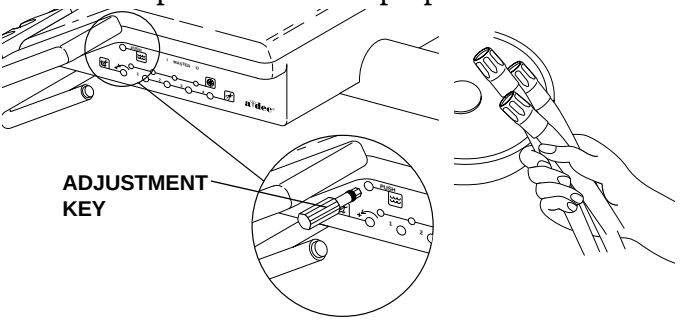


Figure 7. Handpiece Tubing Flush

Products List | Print | Table of Contents

Handpiece Dry Block Conversion

Your Cascade handpiece control system has one to four handpiece control blocks with coolant water to the handpiece. In some cases a control block without coolant water, a dry block, is required. If you require a dry block *(offering NO water to the handpiece)* on your handpiece control system, a dry block conversion kit has been included with your system.

Installing the Dry Block Conversion Kit

- Move the master on/off toggle to the OFF position. Bleed the system water by operating the syringe and flushing the handpiece tubings.
- Locate the handpiece control block position that will be the dry block. Access the control blocks underneath the control head.
- Use a 3/32-inch hex key to remove the large red cartridge from the control block. Install the large black cartridge from the dry block conversion kit into the control block *(see Figure 8)*.
- Use a 3/32-inch hex key to remove the small blue cartridge from the same control block. Install the small black cartridge from the dry block conversion kit into the control block *(see Figure 8)*.
- Turn your handpiece control system ON, then check the function of the dry block handpiece conversion. A small amount of residual water may be discharged from the

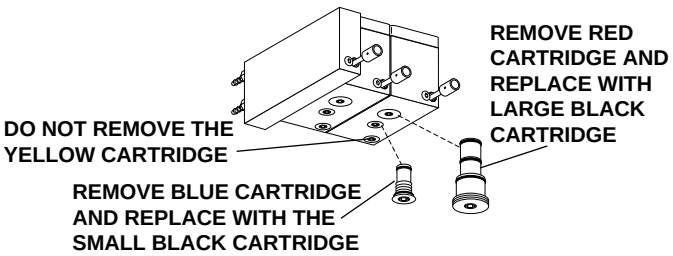

REMOVE RED CARTRIDGE AND REPLACE WITH LARGE BLACK CARTRIDGE
DO NOT REMOVE THE YELLOW CARTRIDGE
REMOVE BLUE CARTRIDGE AND REPLACE WITH THE SMALL BLACK CARTRIDGE

Figure 8. Handpiece Dry Block Conversion

Oil Collector

handpiece tubing but should dry after a few seconds.

The oil collector on your unit needs to be changed once a week for normal usage. Change more often for heavier use.

- Remove the oil collector jar from the unit and discard the old gauze *(refer to Figure 9)*.
- Fold in quarters a new two-inch square gauze pad and place against the spring inside the jar.
- Screw the oil collector jar onto the unit. Do not overtighten.

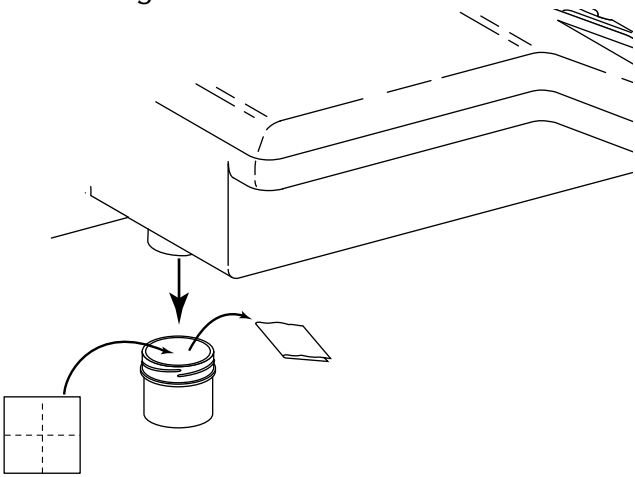


Figure 9. Oil Collector

Autoclavable Syringe

The syringe included with your Cascade Handpiece Control System is A-dec's Autoclavable Syringe, featuring a three-way air and water system and a patented quick-disconnect autoclavable tip system.

The operation, care, and maintenance of the syringe are discussed in detail in your **Autoclavable Syringe Owner's Guide** *(A-dec Publication No. 85.0680.00).*

Tray Holder (optional)

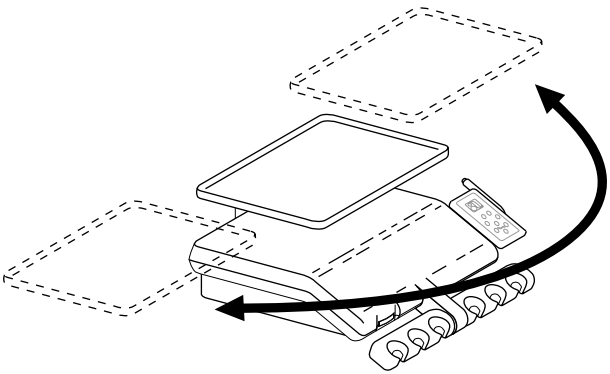


Figure 10. Tray Holder

For maximum flexibility in tray positioning, the optional tray holder can be rotated a full 360°, and the tray arm can be pivoted to either side of center *(see Figure 10)*.The optional tray holder should be adjusted so that it rotates easily, yet maintains its position while instruments are removed and replaced.

Tray Holder/Tray Arm Tension Adjustment

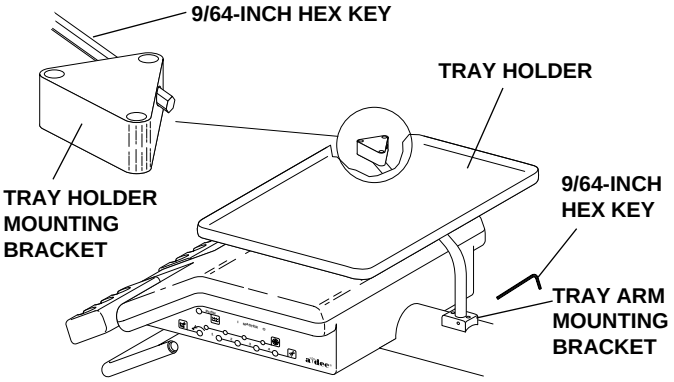


Figure 11. Tray Holder/Tray Arm Adjustment

To adjust the tray holder or tray arm, insert a 9/64-inch hex key through the appropriate mounting bracket *(see Figure 11)*. The hex key should protrude from the opposite side of the mounting bracket. If it does not, rotate the holder or arm until the key slides through the mounting block. While holding the bracket stationary, turn the holder or arm clockwise to increase the tension or counterclockwise to loosen the tension.

Routine Adjustments

Handpiece Coolant Adjustments

You will need an adjustment key or 1/8-inch hex key to complete these adjustments.

1. Install a bur in the handpiece.
2. Locate the coolant air control, the coolant water controls, and the wet/dry toggle on the foot control or the coolant water on/off control on the Cascade Master touch pad *(see Figure 2 on page 3 and Figure 6 on page 8)*.
3. Move the wet/dry toggle on the foot control to the OFF position *(away from the blue dot)*.
4. Insert an adjustment key into the coolant air control.
5. Turn clockwise until the valve seats. Turn counterclockwise 1-1/2 turns or until the desired air flow is achieved.
6. Insert the adjustment key into the coolant water control for the handpiece requiring adjustment and turn the control clockwise until it seats softly.
7. Move the wet/dry toggle on the foot control to the ON position.
8. While running the handpiece at medium speed, turn the handpiece coolant water control until a fine mist is visible around the bur. Adjust coolant air and water flow until the desired cooling mist is achieved.
9. Repeat Steps 1, 6, 7, and 8 for each additional handpiece.

Handpiece Drive Air Pressure Adjustment

You will need a 3/32-inch hex key to complete this adjustment.

The drive air control must be adjusted to meet the handpiece manufacturer's *maximum dynamic* drive air pressure specification.

1. Install a bur in the handpiece.
2. Locate the drive air gauge on the front of the unit *(see Figure 3 on page 5)* and the drive air controls on the side of the unit *(see Figure 2 on page 3)*.
3. Insert the hex key into the drive air control for the handpiece requiring adjustment.
4. Turn the drive air control clockwise until it seats. With the foot control disc fully depressed, turn the drive air control counterclockwise until your handpiece is running at slightly above the specified drive air pressure; then, turn the control clockwise until the handpiece is running at the specified drive air pressure.
5. **Do not** turn the control counterclockwise beyond the point where the drive air pressure no longer increases. The control adjustment screw may come completely out of the unit.
6. Repeat Steps 1 through 5 for each handpiece.

Flexible Arm

A-dec's flexible arm system is designed for side delivery and over-the-patient delivery of the handpiece control. The arm allows vertical and horizontal positioning of the control head to suit your practice.

The arm is braked against vertical movement until you release the arm brake *(refer to page 6)*. If the arm tends to rise or drop when the brake is released, refer to the adjustment instructions below.

Counterbalance Spring Adjustment

The flexible arm contains a spring that counterbalances the weight of the control head. The arm also contains a friction mechanism to stabilize the arm at the upper and lower extremes of its vertical arc.

If the arm tends to rise or drop when the arm brake is released, the counterbalance spring needs adjustment.

1. Remove the flexible vinyl cover from the underside of the arm *(see Figure 12)*. Gently pull the tubing and wiring in the arm slightly aside.

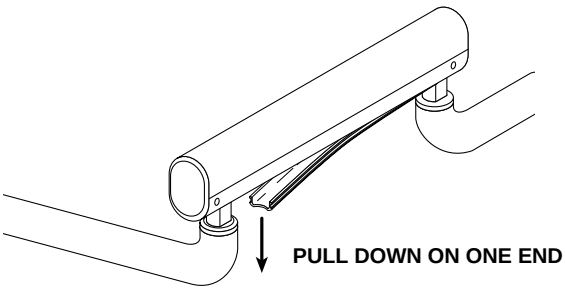


Figure 12. Flex Arm Cover

2. Raise the end of the flex arm until the friction adjustment socket head screw is accessible through the access hole in the arm *(see Figure 13)*.

   Using a 5/32-inch hex key, loosen the friction adjustment screw.

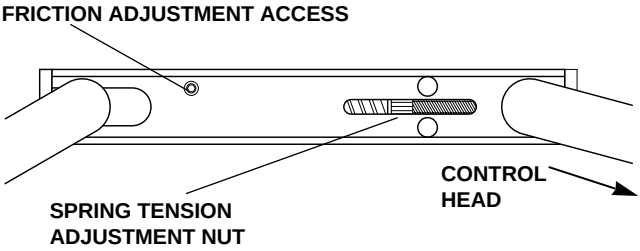


Figure 13. Spring Tension Adjustment

3. If the arm tends to drop, use a flat-blade screwdriver to turn the spring tension adjustment nut clockwise (as viewed from underneath the flex arm) *(see Figure 14 on page 19)*. If the arm tends to rise, turn the adjustment nut counterclockwise.

   While adjusting the spring tension, frequently move the arm through its vertical arc to see if it is adjusted properly.

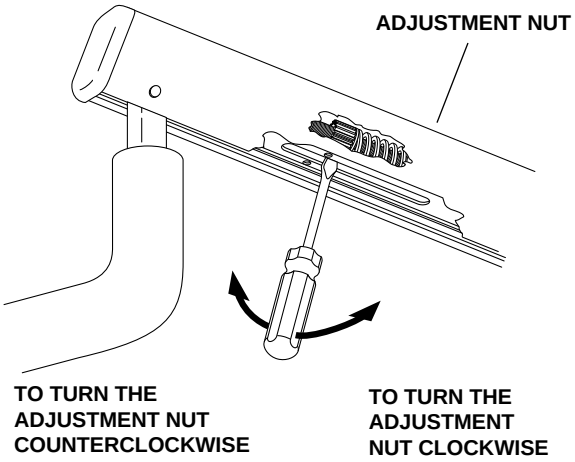


Figure 14. Spring Tension Adjustment

4. When you are satisfied with the spring tension adjustment, move the arm alternately to the full up and the full down positions, releasing the control head at each position. If the arm drops or rises when you let go of it, tighten the friction adjustment. Be careful not to overtighten the adjustment or you may damage the friction mechanism.
5. Reinstall the flexible vinyl cover. Start by inserting one end of the cover into the arm and press it into place along the bottom of the arm.

Arm Stop Adjustment for Left/Right Conversion

Lift the cap, between the rigid arm and flexible arm *(see Figure 15)*. Use a 3⁄32-inch hex key to remove the stop assembly. Rotate the flexible arm so the threaded hole is on the other side of the pin and reinstall the stop assembly.

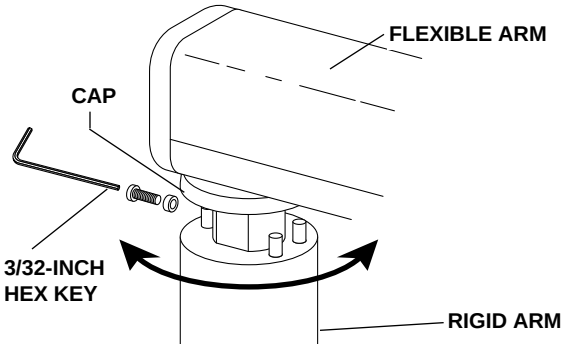


Figure 15. Flexible Arm Stop Adjustment

Lift the cover, at the base of the rigid arm, from the top of the post box *(see Figure 16)*. Use an 1⁄8-inch hex key to remove the stop assembly. Rotate the rigid arm so the threaded hole is in the opposite slot. Reinstall the stop assembly.

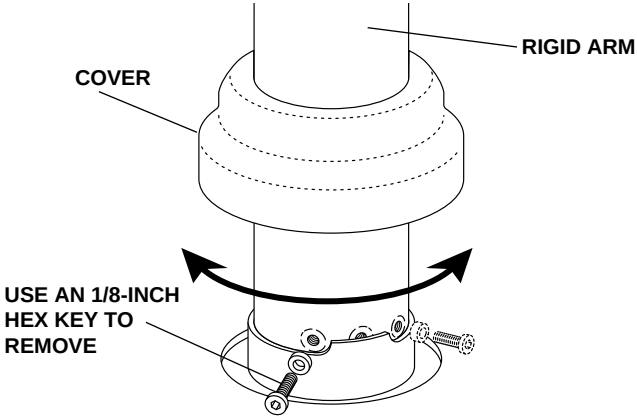


Figure 16. Rigid Arm Stop Adjustment

System Air and Water Pressure Adjustments

For system air and water pressure adjustments, refer to your **Floor Boxes Owner's Guide** *(A-dec Publication No. 85.2611.00)*.

Care Instructions

For recommended asepsis instructions, refer to ***Equipment Asepsis Owner's Guide*** *(A-dec Publication 86.0696.00)*.

Maintenance

Handpiece Tubing Flush.....*page 10*
Oil Collector.....*page 12*
Autoclavable Syringe
Autoclavable Syringe
Owner's Guide.....*85.0680.00*
Care Instructions
Equipment Asepsis
Owner's Guide.....*85.0696.00*
Parts
Maintenance Parts
Owner's Guide.....*85.2634.00*
Power Supplies
Floor Boxes
Owner's Guide.....*85.2611.00*

Adjustments and Specifications

Handpiece Coolant Adjustments .....*page 15*
Handpiece Drive Air Pressure Adjustments ....*page 16*
Counterbalance Spring
Adjustment.....*page 17*
System Air and Water Pressure Adjustments
Floor Boxes
Owner's Guide.....*85.2611.00*

Minimum air, water and vacuum service requirements for proper unit operation:
Air: 2.50 cfm (70.80 l/min) at 80 psi (551 kPa).
Water: 1.50 gpm (5.68 l/min) at 40 psi (276 kPa).
Vacuum: 12 cfm (339.84 l/min) at 8 inches of mercury (27 kPa).

10 lbs (4.54 kg) typical vertical load on tray to overcome the arm brake.

Any optional non–A-dec attachments and/or accessories must comply with EN 60601-1 and EN 60601-1-2.

Weights of optional attachments:
Curing light: 3 lbs (1.36 kg)
Scaler: 2 lbs (.91 kg)
Intra-oral light source: 1 lbs (.45 kg)
Tooth dryer: 1 lbs (.45 kg)
Touch pad: .5 lbs (.23 kg)

Specifications are subject to change without notice.

Identification of Symbols

Recognized by Underwriters Laboratories Inc. ® with respect to electric shock, fire and mechanical hazards only in accordance with UL 2601-1. Recognized with respect to electric shock, fire, mechanical and other specified hazards only in accordance with CAN/CSA C22.2, No. 601.1.

UL listed to US (UL 544) and Canadian (CAN/CSA C22.2, No. 125) safety standards.

Classified by Underwriters Laboratories Inc. ® with respect to electric shock, fire and mechanical hazards only in accordance with UL 2601-1. Classified with respect to electric shock, fire, mechanical and other specified hazards only in accordance with CAN/CSA C22.2, No. 601.1.

Conforms to European Directives *(refer to Declaration Statement)*

Protective earth (ground).

Functional earth (ground).

Attention, consult accompanying documents.

TYPE B APPLIED PART.

CLASS II EQUIPMENT.

Classification of Equipment (EN 60601-1)

Type of shock protection:
CLASS I EQUIPMENT
(Dental Chairs, Dental Lights, & Power Supplies)
CLASS II EQUIPMENT
(Chair, Wall, & Cart Mounted Delivery Systems)

Degree of shock protection:
TYPE B APPLIED PART (All products)

Degree of protection against water ingress:
ORDINARY EQUIPMENT (All products)

Mode of operation
CONTINUOUS OPERATION
(All models except Dental Chairs)

Mode of operation
CONTINUOUS OPERATION
WITH INTERMITTENT LOADING (Dental Chairs)

a-dec®

2601 Crestview Drive
Newberg, Oregon 97132 U.S.A.
Telephone 1-800-547-1883
(503) 538-7478
Fax (503) 538-0276

a-dec
international, inc.

Designated Representative's Address:
A-dec Dental U.K., Ltd.
Austin House
11 Liberty Way
Attleborough Fields,
Nuneaton, Warwickshire.
England. CV11 6RZ.
Telephone: 00 44 24 7635 0901
Fax: 00 44 24 7634 5106

Designated Representative's Address:
A-dec Australia
41-43 Bowden Street
Alexandria, N.S.W. 2015, Australia
Telephone: (61) 1.800.225010

85.2607.00
1999-03 Rev G
(00959)

Made with 50% waste paper

Printed in USA.
Copyright © 1999,
All Rights Reserved.